Are cannabinoids potential candidates for the treatment of Post-Traumatic Stress Disorder (PTSD)?

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Post-Traumatic Stress Disorder (PTSD) is a chronic psychiatric disorder triggered by a traumatic and/or life threatening event. In spite of its increasing incidence, there are no established effective treatments for this disorder. PTSD pathogenesis relies on paradoxical changes of emotional memory processing induced by the trauma exposure and associated with emotional dysfunction. Severe stress often turns emotional memories into a source of chronic anxiety, which may lead to the development of stress related disorders such as PTSD. An appropriate emotional response to an aversive event requires fine-tuned neurotransmitter release regulation and functional neuronal circuits. The endogenous cannabinoid system is a crucial modulator of these processes, playing an important role in the modulation of synaptic plasticity and memory function. Emerging evidence demonstrates that the level of stress associated to the environmental conditions plays a crucial role in modulating cannabinoid effects on emotional behaviors. We have accumulated preliminary evidence that the endocannabinoid system plays an important role in the modulation of processes occurring in PTSD thus representing a potential therapeutic target for this disorder. In this talk we will present results indicating that exogenous manipulation of the endocannabinoid system in rats differentially affect memory consolidation, retrieval and extinction processes. Therefore we will demonstrate that, by selecting an appropriate time window of intervention, the exogenous manipulation of the endocannabinoid system can exert in rodents therapeutic effects with regard to the development of long-term behavioral alterations partially resembling those seen in PTSD patients.